



Environmental Guidelines Sydney Olympic Park 2008



The Environmental Guidelines for Sydney Olympic Park were updated in 2008.

- the draft new guidelines were approved by the Sydney Olympic Park Authority Board on 28th February 2008, and adopted subject to the Minister's consent; and
- consent for the SOPA Board to amend the original guidelines was given by the Minister for Planning on the 27th June 2008.

Statement of Environmental Policy

In carrying out all of its functions, Sydney Olympic Park Authority is committed to the principles of ecologically sustainable development (ESD) within the meaning of the NSW Local Government Act (1993), and as interpreted in these Environmental Guidelines.¹

Through implementation of the Environmental Guidelines, the Authority seeks to set a high standard of environmental performance and work to continually improve the sustainability of Sydney Olympic Park and the business activities of Sydney Olympic Park Authority. Priority will be given to preventing pollution, conserving habitat and species, reducing resource consumption; preserving unique features and heritage; demonstrating best practice by example; and complying with statutory and regulatory requirements.

The Sydney Olympic Park Authority is committed to the care, control, management, and development of Sydney Olympic Park in accordance with its Environmental Management System (EMS).

The Sydney Olympic Park Authority's Environmental Management System has been developed for use by its personnel, contractors and key stakeholders as a means of helping the Authority achieve its commitment to Ecologically Sustainable Development. The Environmental Management System provides the management framework through which the Authority will:

- Comply with all relevant state and national statutes and international biodiversity conservation treaties.
- Provide a systematic approach to managing the environmental impacts of its activities, projects and maintenance programs;
- Manage environmental risks through risk reduction strategies and contingency planning;
- Provide environmental awareness and procedures training for staff and contractors;
- Share environmental knowledge and experience with others;
- Continually improve its environmental performance;
- Report on its environmental performance through statutory and non-statutory reporting and information exchange forms; and
- Implement the Parklands Plan of Management to deliver a best practice approach in adaptive parkland management.

The Environmental Management System is based on the requirements of the International Standard for Environmental Management Systems, ISO 14001:1996 and describes how the Authority will manage its environmental affairs and continue to meet, and improve on its Ecologically Sustainable Development performance.

¹ This commitment is set out in Section 15 of the SOPA Act (2001) as an obligation for SOPA: SEE copy of ESD extract in Part 6.

The Olympic Games Environmental Legacy

The 1993 Environmental Guidelines formed part of Sydney's bid to host the 2000 Summer Olympic Games, and were subsequently applied to transforming Sydney Olympic Park's degraded landscapes, building Olympic sporting venues and hosting the Olympic Games.

Implementation of the 1993 Environmental Guidelines was externally assessed by the Earth Council - an international non-governmental organisation created after the 1992 United Nations Summit on Ecologically Sustainable Development. Four reviews were conducted between 1996 and 2000, with an 8^{1/2}/10 rating being awarded in the final review. The Chairman of the Earth Council concluded that Sydney 2000 would have a significant positive legacy in promoting sustainable development in the form of:

- Pioneering the large-scale application of sustainable development principles to a major construction and event project;
- Developing and testing new tools and practices that have been shared freely in Australia and globally;
- Raising awareness among professionals, government planners and regulators that sustainable development is a viable approach;
- Setting a series of best practice benchmarks against which others in comparable circumstances are now meeting or extending themselves to exceed; and
- Mainstreaming high levels of environmental performance into the building and construction industry within Australia and all around the World.

Through implementation of the 1993 Environmental Guidelines a number of tangible legacy outcomes were achieved including:

- World class environmentally responsible venues and facilities were built for the Sydney 2000 Olympic and Paralympic Games and now provide Sydney with an excellent major events precinct at Sydney Olympic Park and specialist venues in other areas;
- Approximately 160 hectares of badly degraded public land was remediated and restored and, along with other rehabilitated land, one of the largest and most diverse urban parklands in Australia (425 hectares) was created;
- Remnant wetlands and forest were conserved and enhanced, and native flora and fauna including the endangered Green and Golden Bell Frog were protected;
- Australia's first large scale urban water recycling system was established, saving approximately 850 million litres of drinking water each year; and
- Environmental education, interpretation and research programs were developed and continue today, as a contribution to improving the community's knowledge and practices in environmental sustainability.

Sydney Olympic Park has won many prestigious international and national environmental awards including: the 'Global 500 Role of Honor' from the United Nation Environment Program; three 'Banksia Awards' (including the Gold Award); the 'Rivercare 2000 Award' (Gold).

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1: PRELIMINARIES

1.1 Title and Status of the Guidelines

The Environmental Guidelines for Sydney Olympic Park (2008) are the Environmental Guidelines referred to in Section 4 of the Sydney Olympic Park Authority Act (2001) and are an amendment to the *Environmental Guidelines for the Summer Olympic Games (1993)* for the purposes of Section 49 of the Sydney Olympic Park Act.

1.2 Principal Objective

The principal objective of the Environmental Guidelines is to set out a general scheme of environmental issues and commitments that aim to implement the Environmental Policy of the Sydney Olympic Park Authority with regards to the care, control, management, and development of Sydney Olympic Park.

1.3 Application of the Guidelines

The Environmental Guidelines apply to the whole of the land identified as Sydney Olympic Park in the Sydney Olympic Park Act. In accordance with Section 20 of the Sydney Olympic Park Authority Act the Authority must before carrying out any proposed development, consider whether the proposed development is consistent with the Environmental Guidelines. Section 18 of the Sydney Olympic Park Authority Act requires the Authority to prepare and maintain a Master Plan for Sydney Olympic Park *that is* consistent with the Environmental Guidelines.

1.4 Commencement of the Guidelines

The Minister responsible for the Sydney Olympic Park Authority (the NSW Minister for Planning) consented to Sydney Olympic Park Authority adopting the Environmental Guidelines on 27th June 2008 and for the purposes of the Environmental Guidelines they were adopted by the Authority and came into effect on that date.

1.5 Revocation Date

The Environmental Guidelines may be amended at any time in accordance with the requirements of Section 49 of the Sydney Olympic Park Authority Act. There is no expiry date for the Environmental Guidelines however it is expected they will be reviewed and if required amended within 5 years from commencement.

1.6 Revocation of a Previous Guidelines

The Environmental Guidelines known as the *Environmental Guidelines for Sydney Olympic Park* cancel the original Environmental Guidelines known as the *Environmental Guidelines for the Summer Olympic Games (1993)* and as such the original Environmental Guidelines no longer have any force or affect.

2: CONTEXT & PRINCIPLES

The Environmental Guidelines are not prescriptive in the sense of rigidly specifying actions that must be taken and they do not attempt to address all environmental issues. Rather, they focus on highlighting key environmental issues for Sydney Olympic Park; defining the major challenges these issues present Sydney Olympic Park Authority; and state the various commitments that Sydney Olympic Park Authority has made to progressively enhance the sustainability of Sydney Olympic Park.

As such the Environmental Guidelines provide an important reference point for (a) planners, developers, event owners and place managers to test the quality and relevance of their environmental sustainability effort at Sydney Olympic Park; and (b) assessment and consent authorities to check the adequacy of development and operational proposals at Sydney Olympic Park in terms of potential to enhance environmental sustainability outcomes.

2.1 Global Perspective

As the twenty-first century unfolds, there is growing realisation that the environmental impact of human activities on the Earth's weather, climate, oceans, land, geology, natural resources, ecosystems, and other environmental elements, is having potentially devastating impacts on human living conditions and life support ecosystems across the globe. Water shortages, desertification, soil degradation, greenhouse gas emissions, elevated sediment and nutrient flows in rivers and seas, and other environmental problems are increasingly becoming the common side effects of modern human activities.

Globally, economic growth and increasing world populations continue to place increased pressure on the environment and the ability of ecological systems to sustain themselves. This is evidenced in part by:

- growing rates of energy consumption;
- loss of water supply and water quality;
- threats to biodiversity and natural resources;
- extinction of species and natural communities;
- increasing amounts of waste being generated;
- impacts of increasing populations and housing demand; and
- accelerating changes in global climates.

2.2 National Direction

Australia has a *National Strategy for Ecologically Sustainable Development* that aims to meet the needs of Australians today, without compromising the ability of future generations to meet their own needs.

Four principles that are necessary in understanding and realistically pursuing sustainable development are:

- The precautionary approach;
- Intergenerational equity;
- Biodiversity conservation; and
- Environmental value pricing.

In the Australian context, these approaches, together, aim to prevent and reverse adverse impacts of economic and minimise social activity on ecosystems, while continuing to allow the sustainable, equitable development of society.

2.3 NSW State Commitments

The NSW Government is committed to sustainable development in the *State Plan (2006)* through its focus on: achieving growing prosperity across NSW; delivering better services; fairness and opportunity; supporting rights, respect and responsibility; and promoting an environment for living. The State Plan also includes targets for natural resource management – biodiversity, water, and land – in ways that relate to intrinsic values of the environment not just human utility values. A number of NSW Government agencies are directly engaged in the environmental sustainability initiatives, and all agencies are required to consider environmental sustainability in their business decision-making.

The NSW Government has defined the objects, functions, duties and obligations of the Sydney Olympic Park Authority in State Legislation through the Sydney Olympic Park Authority Act (2001). In the environment areas the Act requires Sydney Olympic Park Authority to:

- Protect and enhance the natural and cultural heritage of Sydney Olympic Park (S13);
- Carry out its functions taking into consideration the principles of ecologically sustainable development (S15);
- Make a Master Plan that may provide for the protection, enhancement and use of waterfront areas, parklands and areas of natural vegetation (S18);
- Consider whether developments are consistent with the Environmental Guidelines before they are carried out (S20);
- Maintain, improve, encourage the use and enjoyment, and protect the environment of the Parklands, and achieve the purposes of the Newington Nature Reserve (S28: S37);
- Maintain and extend the use of the water reclamation and management scheme, and encourage the use of renewable energy (S48); and
- Produce a state of the environment report annually addressing a number of particular environmental areas and associated performance levels (S50).

2.4 Local Position

The Environmental Guidelines are the framework through which the Authority guides its own and others activities at Sydney Olympic Park into “thinking globally and acting locally”.

The Sydney Olympic Park Authority was established in 2001 to care for, control, manage, and develop the 640 hectares that comprise Sydney Olympic Park (the Park), as a lasting legacy for the people of NSW. The Authority is obliged and committed to developing Sydney Olympic Park into a modern and sustainable new town, while preserving a robust capability as a major events precinct; and maintaining, enhancing and protecting the parklands and particularly the natural environment therein for present and future generations.

The 1993 Environmental Guidelines for Sydney Olympic Park (the Environmental Guidelines for the Summer Olympic Games (1993)) were integral to Sydney's successful bid to host the Sydney 2000 Olympic Games. Notwithstanding the significance of the 1993 Environmental Guidelines in their contribution to the planning for the construction of Olympic venues and the staging of major events – they were not intended, nor were they comprehensive enough, to guide the longer term environmental issues associated with place management and township development.

The Environmental Guidelines have been amended to cater for sustainable development at Sydney Olympic Park taking into account:

- all of the future roles established for Sydney Olympic Park (as a major event precinct, a modern new township, and a regional parkland);
- a more contemporary and holistic understanding of environment beyond ecology alone;
- recent advances in environmental technology and research; and
- lessons learned through the practical application of the original guidelines.

3: GENERAL COMMITMENTS

Sydney Olympic Park Authority aspires for Sydney Olympic Park to be recognised locally, nationally and internationally as a place that champions sustainable development and achieves excellence in environmental management. To support these aspirations, implementation of the Environmental Guidelines will be in consideration of the global, national and local contexts set out above, and will be guided by the following important commitments applicable to Sydney Olympic Park as it evolves to become a modern new township in metropolitan Sydney, in addition to its current role as the premier major events precinct in NSW and a world class regional parklands with high biodiversity values.

3.1 Involving People

People exist as a part of the environment not apart from it. Encouraging a high level of community involvement and promoting a strong sense of community identity with the local environment and the more important elements of it (through opportunities in volunteering, education and tour programs, participation in environmental conservation initiatives, and learning from a range of information sources) is an important way of strengthening peoples appreciation of and relationship to the environment.

The environmental programs and activities occurring at Sydney Olympic Park have the potential to foster a greater community understanding of environmentally sustainable development, and in doing so can stir the imagination and challenge people to work towards sustainability. As part of Sydney Olympic Park Authority's community service obligations it will continue to facilitate and where appropriate deliver environmental programs and activities, and continue to produce an annual *state of environment report* as its major public reporting mechanism for communicating sustainability at Sydney Olympic Park to stakeholders and the broader community.

3.2 Social Capital

The connections within and between social networks is a core concept in public thinking around the world, and while not the solution to all the problems of modern society, it does have particular importance to the future Sydney Olympic Park. To build and nurture the social capital of Sydney Olympic Park, the principles of social equity and opportunity, and designing for people and communities, will be applied in the future development of the township and parklands. Public spaces and community facilities will be designed and operated to make positive contributions to recreation and leisure opportunities, cultural celebration, intellectual stimulation, spiritual expression, and otherwise generally seek to enhance the emotional and physical health and well-being of inhabitants.

Sydney Olympic Park Authority will as far as possible ensure that social connectivity is promoted, and social impacts are assessed and managed as part of its process for planning and delivering developments and activities. Sydney Olympic Park Authority's care, control and management of the place will preserve and enhance 'great experience' opportunities for those in the precinct. A priority will be for community infrastructure to be developed to an adequate level and in a timely manner; and people from all sections of the community should be able to participate fully in community life – including those with modest incomes; those from culturally and linguistically diverse backgrounds; and people with disabilities.

3.3 Liveable Places

Liveable places are the stage for the public lives of all in a community. They are the parks and plazas where families gather to celebrate, public events are performed, workers seek lunch-time respite, children play, sporting competitions are held, and where cultures mix. They are the streets in front of homes and businesses where friends run into each other, and where exchanges both social and economic take place. They are the front porches of our public buildings where we interact with each other and Government.²

The places at Sydney Olympic Park will as far as possible be planned, designed, operated and furnished in ways that residents, visitors and workers can: undertake activities and use facilities that will enhance their physical, intellectual, emotional and spiritual well-being; have safe and equitable access to places and transport options; and experience a range of lifestyles reflective of a vibrant major event precinct and a world-class parklands environment.

3.4 Environment Protection

Contemporary environment protection standards tend to focus on minimising further environmental loss and compliance with defined statutory performance targets – whereas in a world seeking sustainable development there is a need to go further and reverse established trends by: reducing consumption of resources, repairing damage from pollution of the environment, and preventing incremental loss of biodiversity.

In this spirit Sydney Olympic Park Authority will as far as possible seek to achieve compliance in all of its environmentally-impacting endeavors at Sydney Olympic Park with a view to continuously reducing the *environmental footprint* of its operations. There will be an emphasis on addressing the conservation of flora and fauna; the resilience of recreation and leisure spaces; the adaptive re-use of heritage buildings and artifacts; maintaining the social capability of open space; protecting the quality of land and water systems; and improving the efficiency of water and energy consumption.

3.5 Development Planning & Design

The nature of an urban place, the viability of its local economy, the quality of life it supports, and the significance of its contribution to wider society is very much dependent on the adequacy of the environmental planning and development design that underpin it and the resultant character, diversity, scale, layout, aesthetics of the place, its uses and physical attributes.

To achieve Sydney Olympic Park Authority's obligations with regards to the ongoing development of Sydney Olympic Park's modern new township and associated township uses, Sydney Olympic Park Authority will manage the evolution of the place through a formal Master Plan. The Master Plan will be supported by various strategies and guidelines that incorporate best practice planning and design principles and that will promote a sustainable place to support the changing business, event, visitation, worker and resident needs of the precinct into the future. Importantly development will take place in a manner that will not compromise the established major sporting and entertainment event venue activities, public domain event operations, or ecologically important habitats.

² Adapted from How to Turn a Place Around – A Handbook for Creating Successful Public Spaces by Project for Public Spaces, Inc. 2001.

3.6 Adaptive Management

Sydney Olympic Park is a rapidly evolving place that will be influenced on an ongoing basis by changing economic, social and environmental conditions. In this context it is important to be able to continuously respond to and/ or anticipate the changing needs and values of the place and its environment over time, which is best accommodated by an adaptive management and continuous improvement approach to development and operations.

Adaptive management – making continuous adjustments to plans and programs in light of new information or understanding is important for Sydney Olympic Park where there are multiple competing roles for the place concurrent with various complex and dynamic social and environmental issues, and where relevant technological advancement and environmental impacts are likely. To support this approach to management, Sydney Olympic Park Authority will as far as possible actively support research, learning and studies to help better understand and support the incremental adaptation of new information to improving environmental performance in the built and natural areas of Sydney Olympic Park.

3.7 Asset Functionality

The built and natural physical assets of a place are the foundation to its character, resilience, fitness for purpose, and overall contribution to its roles in support of society. The environmental sustainability of a place like Sydney Olympic Park is highly influenced by good initial design of the built assets, the selection of materials for their construction, the efficiency of their operating regimes, and the demand for ongoing maintenance. For natural assets the levels of impact from visitor and management activity, the standards of presentation required, the resilience of the natural systems, and the intensity of uses impacts greatly on the sustainability of the environment.

In recognition of the criticality of built and natural physical assets to Sydney Olympic Park, Sydney Olympic Park Authority will as far as possible emphasise in all of its work:

- holistic and pro-active asset management strategies;
- high quality standards of asset maintenance and servicing;
- restricting over-use of assets where future capacity is at risk;
- timely asset replacement and refurbishment; and
- maximisation of asset lifecycles commensurate with service level demands.

In particular this approach involves a commitment to NSW Government Total Asset Management Policies and an annual review and update of asset management plans to ensure a robust asset management program, and an effective asset operations regime.

4: SUSTAINABILITY ISSUES & OBJECTIVES

The Environmental Guidelines address the key issues of significance for Sydney Olympic Park and set particular objectives for each in the context of environmental sustainability and Sydney Olympic Park's future as a modern new township; a premier major events precinct; and a world class regional parklands with high biodiversity values.

4.1 Water Conservation

Water is fundamental to life on Earth, and freshwater is a scarce global resource. Australia is the driest of the world's inhabited continents, yet its twenty-first century urban settlements have inherited water-wasting cultural attitudes and infrastructure systems. Inadequate understanding of water conservation opportunities and related poor water management practices can lead to significant water wastage which in turn can result in drinking water shortages and/ or cause environmental impacts from pollution, erosion and loss of habitat.

Sydney Olympic Park has a locally integrated approach to water conservation based on storm-water reuse, waste-water reprocessing, and water demand reduction. A Water Reclamation and Management Scheme (WRAMS) was introduced in 1999 that was Australia's first large scale urban water treatment scheme designed initially to save more than 850 million litres of drinking water annually, through avoiding the use of potable water for non-drinking purposes (such as irrigation, toilet flushing, cleaning surfaces etc). Sydney Olympic Park's water conservation program is being incrementally adapted to refine local management strategies and also integrate with Sydney's emerging metropolitan water recycling infrastructure network and wider community water conservation initiatives. The water conservation program also supports reductions in down-stream water pollution; provides ecological flows for isolated water bodies in drought periods; and allows the operation of recreational water features without potable water consumption.

Water Conservation Objectives

Sydney Olympic Park Authority seeks to build on significant water conservation achievements at Sydney Olympic Park in the past, to further improve its performance, with an emphasis on increased water use efficiency and reductions in overall water demand. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Minimising overall public domain water use at Sydney Olympic Park (potable and non-potable water) using best practice environmental design principles, innovative technology, water sensitive urban design, water efficient landscaping and other demand management practices;
- (b) Requiring all new developments to maximise opportunities for building and infrastructure design to incorporate water collection and recycling systems;
- (c) Avoiding adverse impacts on water quality or quantity in local streams, wetlands and groundwater from operations, developments, and major event activities at Sydney Olympic Park; and
- (d) Working with lead agencies in the promotion of sustainable water resource management practices through integration of water infrastructure, sharing knowledge and experience, and supporting education and research programs.

4.2 Energy Conservation

To be sustainable, the planet must operate on and consume no more than its current income of energy. Fossil fuel energy represents eons of stored solar energy, which – at current rates of usage – is rapidly approaching exhaustion. In addition, the world community is grappling with the threat of climate change brought about by the use of fossil fuels and the associated discharge of greenhouse gases into the atmosphere.

The Intergovernmental Panel on Climate Change (IPCC)³ has reported that warming of the earth's climate system is unequivocal, evident from observations of increases in global average air temperatures, widespread melting of snow and ice, and rising global average sea levels.⁴ While Australia's total national greenhouse gas emissions are small at a global level, its per-capita emissions are among the highest in the world.

Sydney Olympic Park Authority's main energy source is from electricity. To date Sydney Olympic Park Authority has implemented a broad range of energy reduction and energy generation initiatives, including the use of natural lighting and natural ventilation in buildings, energy efficient lighting and air conditioning systems and the installation of renewable (photovoltaic) electricity generation systems throughout the Park. The Park's solar generation program includes the 'towers of power' and a small solar power generation station in addition to a number of independent solar pump and lighting units in remote areas. The Park's energy conservation program is supported by the purchase of 'green power', introduction of energy demand minimisation strategies, and periodic energy audits to monitor performance.

Energy Conservation Objectives

Sydney Olympic Park Authority seeks to take advantage of the opportunities that arise to improve energy use efficiency, offset energy consumption through co-generation, and reduce overall energy demand. In pursuit of this objective, wherever possible Sydney Olympic Park is committed to:

- (a) Minimising overall public domain energy and peak load demand levels at Sydney Olympic Park.
- (b) Prioritising in developments the use of passive solar design, natural ventilation and selection of energy efficient materials to enhance thermal performance.
- (c) Requiring energy-efficient: heating and cooling systems, building management systems, lighting, and energy consuming appliances to be incorporated in all new building projects at Sydney Olympic Park.
- (d) Adapting and applying best available environmental design principles, technology, demand-management, and procurement practices to progressively and significantly reduce greenhouse gas emissions.

³ The IPCC is an international body of scientists established under the United Nations Environment Program and the World Meteorological Organisation.

⁴ The 4th Assessment Report. Climate Change 2007. Synkoss Report. November 2007.

4.3 Material Selection

To be sustainable, the planet must operate on and consume no more than its current income. The materials that make up the products we use in our homes, businesses and industry can have environmental impacts throughout their life-cycle - from extraction, manufacture, distribution, use and in disposal. Environmentally responsible purchasing and life-cycle assessment are being increasingly used around the globe to highlight and reduce the environmental footprint of materials consumption.

The Sydney Olympic Park Authority – through its development control and/ or asset management activities - carefully monitors materials selection for new and existing developments and in the maintenance and/or refurbishment of existing facilities across Sydney Olympic Park, to reduce harmful toxic materials and impacts on the environment. Sydney Olympic Park Authority also ensures that its operations and management practices minimise the use of harmful materials that are likely to deplete natural resources and/ or create toxic pollution.

Materials Selection Objectives

Sydney Olympic Park Authority seeks to effectively promote the use of sustainable materials and avoid use of materials which deplete natural resources or create toxic pollution in their manufacture, use or disposal. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Considering whole-of-life impacts on the environment when selecting materials for development and operations;
- (b) Prioritising the selection of natural non-toxic materials such as natural fibre insulation, and non-toxic paints, glues, varnishes, polishes, solvents and cleaning products;
- (c) Maximising the use of recycled and recyclable materials in developments and operations, including for consumer packaging;
- (d) Encouraging material re-use for major event overlay (design for disassembly and re-use);
- (e) Prioritising non-use of chlorine, fluorine and hydrogen based carbon gases and promote as alternatives the use of non-ozone depleting, non-greenhouse warming gas refrigerants in construction, major events and other operations;
- (f) Minimising the need for use of chemical control of weeds, pests and diseases -maximising opportunities for integrated control methods;
- (g) Minimising the use of known environmentally damaging or unhealthy products such as chlorine based products including poly-vinyl chloride (PVC) and chlorine bleached paper, and completely avoiding products that include toxic substances such a Copper Chromium Arsenate (CCA) treated timber products; and
- (h) Prioritising the use of low impact timber products including low emission composite timber in construction and major event overlay activities, and timber from managed sustainable sources (verifiable where possible via a chain of custody process) - ensuring no imported or local rainforest timber is used in developments or other activities.

4.4 Waste Management

Industrialised countries across the world are increasingly adopting 'zero' or 'low' waste strategies, in recognition of the major environmental impacts of cradle-to-grave waste flows (to landfill or incineration). Reducing waste in turn improves conservation of our natural resources and minimises the environmental harm from disposal of solid waste – this is particularly important with a growing population in NSW and a healthy economy that is producing more goods and services. Waste reduction and recycling can avoid greenhouse gas, save water and energy, conserve virgin resources and improve the health of our soils.

The Sydney Olympic Park Authority's current waste management approach focuses on all three components of the low waste strategy – reduce the creation of waste; then reuse any waste; then recycle as much as possible of what if anything is left over. Sydney Olympic Park Authority aims to minimise waste from all new developments and activities, maximise the use of recycled materials, and generally promote a reduction in the amount of solid waste going to landfill. Sydney Olympic Park Authority's primary reference document for waste management is its Waste Reduction and Purchasing Plan.

Sydney Olympic Park Authority oversees about 106 hectares of remediated landfill areas and closely manages all aspects of their containment and liquid waste management to best practice standard. Waste liquid (leachate) is mostly disposed of to a liquid waste treatment plant and subsequently the treated water is sent to sewer. Sydney Olympic Park Authority is currently using bio-remediation methods and evaporation ponds for treatment of leachate in some areas, and is pursuing alternative leachate treatment and reuse options (instead of the treatment plant and sewer process) for the future, to enhance the environmental sustainability of the whole landfill remediation process.

Waste Management Objectives

Sydney Olympic Park Authority seeks to effectively promote and support increased economic development and precinct visitation while achieving reductions in overall waste production, and increases in waste stream recycling. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Maximising appropriate opportunities to increase the proportion of recycling for waste produced in the public domain including green waste collection, re-use, and composting;
- (b) Requiring waste management performance and recycling targets for all developments throughout design, construction and operational activities, with a minimum of 80 percent of construction and demolition waste to be recycled or re-used for each development;
- (c) Encouraging public domain concessionaires and service providers to minimise where practical the packaging of foodstuffs for visitor consumption, and otherwise to use non-toxic, recyclable, and biodegradable packaging and materials for their products;
- (d) Educating visitors, workers and residents regarding waste minimisation and management issues, and working in cooperation with venues and businesses to minimise waste generation and maximise recycling of materials; and
- (e) Maximising appropriate opportunities to improve the sustainability of leachate treatment and disposal methods.

4.5 Transport

Globally, energy efficient transport and a lower dependence on private vehicles are indicators of more sustainable communities, however to get increased take-up in the use of public transport requires highly efficient and reliable transport services. Urban sprawl in Sydney and other large metropolitan cities worldwide – without matching upgrades in public transport - has influenced an increase in the dependence on the motor vehicle for work and recreation trips. This in turn increases demand for fossil fuel and road-based infrastructure. Burning fossil fuel has local air pollution and health consequences and wider implications as a source of greenhouse gas pollution. Road infrastructure can have substantial environmental impacts including loss of habitat, disruption to ecological corridors, contributing to water pollution, and loss of amenity.

The town centre of Sydney Olympic Park was purpose designed to efficiently and effectively move very large crowds into and out of the Park during major events and as such encourage extensive use of public transport to and from the Park. Investment in public transport infrastructure at the Park has significantly reduced the environmental impact of hosting major events through reductions in private vehicle use, and the resultant reduction in otherwise comparable greenhouse gas emissions and air pollution. The future traffic generation from development of Sydney Olympic Park's commercial and residential precincts will add to the established major event activity and increase pressure on local and regional traffic and transport networks.

Transport Management Objectives

Sydney Olympic Park Authority seeks to effectively promote efficient and reliable transport services in order to minimise increases in base road traffic demand and to significantly increase the proportion of visitors and workers arriving by public transport. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Establishing Sydney Olympic Park as a destination where the option for travel by public transport is well supported for event patrons and commuters; and transport plans include strategies to reduce car dependency.
- (b) Applying 'demand management' techniques (including integrated ticketing, car-parking controls, priority bus lanes, etc) that encourage public transport use and discourage excessive road based private transport accessing Sydney Olympic Park – particularly during peak commuter times and major events periods.
- (c) Coordinating appropriate road traffic and public transport infrastructure improvements and refinements to reflect changes in the form and function of Sydney Olympic Park and evolving community attitudes to more sustainable transport options.
- (d) Promoting and supporting innovative transport modes, sustainable transport technologies, and the use of alternative fuels.
- (e) Designing new developments at Sydney Olympic Park to be as 'walkable' as possible, connecting transport nodes to walk-ways and cycle-ways, and ensure cycle-ways accommodate the needs of recreational cyclists, pedestrians and workplace commuters.

4.6 Pollution Control

The introduction of chemical or energy contaminants into the environment can - when in excess of natural levels - cause harm to human health, other living organisms, and the environment generally. Land remediation and other forms of urban renewal are important ways of decontaminating places for reuse, and improving the social and environmental well-being of inhabitants, and creating new habitats. The impact of pollution including noise, heat, and light and the contamination of air and water heightens the potential for increased disruption to peoples work and leisure activities, and ecosystems.

Sydney Olympic Park experiences the full range of regional and local air quality, noise, heat, and light impacts each day. The Park itself is subject to the typical urban noise from roads, rail and aircraft, and in addition as a major events precinct is sometimes a generator of loud noise and bright light outside normal working hours – in the event venues themselves and in the public domain. There is also significant sports and entertainment event activity during most day-times mid-week and on weekends which have the potential to impact on the growing worker and resident population of Sydney Olympic Park. The Parklands in contrast are usually more peaceful and serene with less visitor density and less intense forms of use, though they can be affected by activities and events elsewhere in the Park. Sydney Olympic Park Authority's primary reference documents for pollution control are its Remediated Lands Management Plan, Noise Management Guidelines, Environmental management System incorporating a Work Permit System.

Pollution Control Objectives

Sydney Olympic Park Authority seeks to work within its span of control and influence, to effectively manage compliance with applicable noise, air, light, and water quality standards while balancing the different and sometimes conflicting roles of Sydney Olympic Park and the interests of different stakeholders. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Complying with all relevant statutes and regulatory requirements;
- (b) Minimising light pollution by limiting use of lights at inappropriate times, locations, and intensities; and avoiding loss of habitat values or natural ambience for open spaces;
- (c) Promoting the design and physical construction of new buildings so that they mitigate environmental impacts associated with major events;
- (d) Managing remediated landfills and leachate systems to ensure their integrity is maintained, human health and the environment is protected, and statutory compliance is achieved;
- (e) Ensuring development, operations, and event activities do not adversely impact on the water quality of wetlands and watercourses; and
- (f) Validating all soils and 'fill' materials proposed to be imported into Sydney Olympic Park, and reject those that are not free from contamination.

4.7 Biodiversity

Biodiversity loss is occurring world-wide. The Millennium Ecosystems Assessment⁵ has found that human actions are fundamentally, and to a significant extent irreversibly, changing the diversity of life on earth, and most of these changes represent a loss of biodiversity. Change in important components of biodiversity were more rapid in the last 50 years than at any time in human history. Drivers of biodiversity loss and ecosystems services change include: habitat change, climate change, invasion of alien species, and pollution. Australia is one of the twelve most biologically diverse countries in the world.

Sydney Olympic Park contains high species diversity and abundance, including species of local, regional, national and international significance. Native species and remnant ecosystems have been actively conserved and their distribution extended throughout redevelopment of the Park. The Sydney Olympic Park Authority's management programs seek to continue to conserve and enhance the biological diversity and ecological integrity of the Park. Sydney Olympic Park Authority's primary reference document for biodiversity management is its Biodiversity Management Plan.

Biodiversity Objectives

Sydney Olympic Park Authority seeks to appropriately monitor, conserve and enhance wildlife habitat, and the stability of remnant ecological communities and flora and fauna populations where landscapes are largely constructed and levels of visitation and development are increasing significantly. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Protecting and enhancing the natural heritage and ecological integrity of Sydney Olympic Park – targeting priority species and communities, places of high biodiversity value, and biodiversity generally;
- (b) Applying an adaptive management approach to stewardship of Sydney Olympic Park's biodiversity assets;
- (c) Ensuring conservation of biological diversity and ecological integrity is a fundamental consideration for new developments, activities, levels or types of use, or management practices that affect the ecosystems of Sydney Olympic Park;
- (d) Promoting the ecological, aesthetic and educational value of an urban site with high species diversity and abundance;
- (e) Conserving and enhancing the remnant woodland and wetland habitats of Newington Nature Reserve in accordance with the Newington Nature Reserve Plan of Management, and managing adjoining lands in sympathy with the Reserve; and
- (f) Maximising the habitat values of native plantings by promoting priority species and communities, providing structural complexity and plant species diversity, avoiding habitat fragmentation; promoting habitat linkages and large core areas; and prioritising the use of indigenous species in landscape planting schemes in the Parklands.

⁵ Millennium Ecosystems Assessment 2005. Ecosystems and Human Well-being = Biodiversity Synthesis. World Resources Institute. Washington DC.

4.8 Public Open Space

Globally there is an increasing appreciation and understanding that parks and open spaces are of immense value to communities. Public lands that are readily accessible, well furnished, with a diversity of spaces, and a rich heritage, present multiple environmental, educational and recreational opportunities. Public land also provides substantial social benefits and contributes significantly to the health and well-being of individuals. Public open space is now recognised in urban environments as an important ecological, economic, psychological and social resource.

Sydney Olympic Park includes over 500 hectares of public open space comprised of parklands (with over 300 hectares of natural areas) and urban public domain. In 2006 there were in excess of 8 million visitors for the year. The Park includes a diversity of leisure activity spaces; habitat for several protected species and communities; and significant heritage buildings, landscapes and artifacts. Key features include the former State Abattoirs; the former State Brickworks, and the former Royal Australian Navy Armaments Depot.

Sydney Olympic Park Authority's primary reference document for public open space management is its Parklands Plan of Management (incorporating the Newington Nature Reserve Plan of Management), Biodiversity Management Plan, Major Event Impact Guidelines, Heritage Conservation Management Plans, and the Significant Tree Register.

Public Open Space Objectives

Sydney Olympic Park Authority seeks to encourage the appropriate use of the parklands and urban public domain while carefully balancing conflicting interests to ensure preservation of social capacity, protection of unique and important elements, and conservation of heritage and habitats – without any net loss of public open space. In pursuit of this objective, wherever possible Sydney Olympic Park Authority is committed to:

- (a) Promoting and increasing the recreational, historical, scientific, educational and cultural values of the parklands, while recognising the intrinsic values of public open space in addition to its utility services values;
- (b) Encouraging the appropriate use, benefit and enjoyment of the parklands by the public, facilitating opportunities to improve physical health and well-being, social cohesion, cultural expression, and a diversity of leisure experiences;
- (c) Maintaining public access to the parklands whilst ensuring the protection, restoration, and improvement of the environmental features, heritage items, and ecological elements;
- (d) Ensuring wherever possible that spaces are used and managed in such a way that both the land and its natural resources (including water, soil, flora, fauna and scenic quality) are sustained in perpetuity; and
- (e) Protecting and enhancing the natural and cultural (Aboriginal and non-Aboriginal) heritage of the Park, particularly the Parklands;
- (f) Giving priority to multi-use of places and spaces, and avoiding where possible the occupation or disposal of public open space for purely private purposes.

PART 5: CONCLUDING COMMENTS

Sydney Olympic Park occupies a special place in the heart of most Australians. It is a place where Olympic dreams were fulfilled and where Australia showed the world that, in addition to its talented athletes, it was a modern, innovative and capable nation.

The challenge of living in harmony with the environment has not diminished since the 2000 Olympic Games which were widely perceived as 'the green games'. In fact it can be argued that this issue remains the greatest challenge of humanity. Therefore it is crucial to build on the standards of the *Environmental Guidelines for the Summer Olympic Games (1993)* to continue the effort to make and sustain Sydney Olympic Park a place, which inspires others through its environmental innovation and high standards.

The *Environmental Guidelines for Sydney Olympic Park* will support and progress the transition of Sydney Olympic Park from a major venue based sports and entertainment destination into a multifunctional modern new township in addition to its premier major events precinct and world class regional parklands precinct with high biodiversity values.

PART 6: DEFINITION OF 'PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT'

The NSW Local Government Act (1993) defines the principles of ecologically sustainable development (ESD) as follows:

"Ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes.

Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

- (a) The precautionary principle — namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:
 - (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
 - (ii) an assessment of the risk-weighted consequences of various options,**
- (b) Inter-generational equity — namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations,*
- (c) Conservation of biological diversity and ecological integrity — namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
- (d) Improved valuation, pricing and incentive mechanisms — namely, that environmental factors should be included in the valuation of assets and services, such as:
 - (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
 - (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
 - (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."**